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L11: Entry 5 of 5

File: DWPI

Jul 24, 2003

DERWENT-ACC-NO: 2003-598354

DERWENT-WEEK: 200357

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TITLE: Production of high purity crystals of polyhydroxy cyclic carboxylic acids  
e.g. shikimic acid useful as metabolic nutritional involves the use of  
crystallization acids

INVENTOR: MALMBERG, M; WESTRUP, B

## PATENT-ASSIGNEE:

ASSIGNEE

CODE

MALMBERG M

MALMI

WESTRUP B

WESTI

BIOGAIA FERMENTATION AB

BIOGN

PRIORITY-DATA: 2002US-0041865 (January 7, 2002)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
US 20030138920 A1	July 24, 2003		000	A61K038/43
WO 2003057655 A1	July 17, 2003	E	014	C07C051/43

DESIGNATED-STATES: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK  
DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT  
LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SK SL TJ TM TN TR TT  
TZ UA UG UZ VN YU ZA ZM ZW AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE  
IT KE LS LU MC MW MZ NL OA PT SD SE SI SK SL SZ TR TZ UG ZM ZW

## APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
US20030138920A1	January 7, 2002	2002US-0041865	
WO2003057655A1	January 2, 2003	2003WO-IB00131	

INT-CL (IPC): A61 K 38/43; C07 C 51/43; C07 C 51/48; C07 C 62/04; C07 C 62/32; C12 P  
7/40; C12 P 7/42

ABSTRACTED-PUB-NO: WO2003057655A

## BASIC-ABSTRACT:

NOVELTY - Production of high purity crystals of polyhydroxy cyclic carboxylic acids  
(PCCA) involves:

- (1) concentrating an aqueous solution of the PCCA to a concentration of at least 250 g of the PCCA per litre;
- (2) combining the concentrate with at least one acid to form a PCCA/acid slurry; and
- (3) isolating the crystals from the slurry.

The acid is acetic acid, lactic acid and/or propionic acid.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for a method for producing high purity crystals of shikimic acid comprising:

- (1) culturing in a medium an organism capable of excretion shikimic acid into the medium;
- (2) separating the microorganism from the medium to obtain an aqueous solution of shikimic acid;
- (3) concentrating the aqueous solution to a concentration of at least 450 g of shikimic acid per litre;
- (4) combining the concentrate with acetic acid above 25 deg. C to form a slurry;
- (5) cooling the shikimic acid/acid slurry to below 25 deg. C; and
- (6) isolating the crystals.

USE - For producing high purity crystals of polyhydroxy cyclic carboxylic acid (e.g. shikimic acid, quinic acid, dehydroshikimic acid, 6-fluoroshikimic acid and their derivatives) (claimed) useful as metabolic nutritional and starting materials for antiviral, antibacterial and other therapeutic agents.

ADVANTAGE - The process does not use organic solvents or elaborate temperature-swing complexation extractions and displacement back extractions. The process is uncomplicated, economical, environmentally sound and accomplished without the use of complicated and expensive equipment. The crystals produced using the method have purity of greater than 98% and yield of about at least 80 wt.% using highly impure starting material.

CHOSEN-DRAWING: Dwg.0/0

TITLE-TERMS: PRODUCE HIGH PURE CRYSTAL CYCLIC CARBOXYLIC ACID SHIKIMIC ACID USEFUL METABOLISM CRYSTAL ACID

DERWENT-CLASS: B05 D16 E15

CPI-CODES: B04-F10A3E; B10-C04A; B11-A01; D05-C; D05-H14A1; E10-C04A; E11-Q01;

CHEMICAL-CODES:

Chemical Indexing M2 \*01\*

Fragmentation Code

G037 G562 H4 H403 H463 H8 J0 J011 J1 J151  
M280 M320 M415 M510 M520 M530 M541 M720 M904 M905  
N131 N135 N161 N163 N200 N511 N512 N513 Q233 R032  
Specific Compounds  
03726K 03726P

Chemical Indexing M3 \*01\*

Fragmentation Code

G037 G562 H4 H403 H463 H8 J0 J011 J1 J151  
M280 M320 M415 M510 M520 M530 M541 M720 M904 M905  
N131 N135 N161 N163 N200 N511 N512 N513 Q233 R032  
Specific Compounds  
03726K 03726P

Chemical Indexing M2 \*02\*

Fragmentation Code

G037 G038 G563 H4 H404 H464 H8 J0 J011 J1  
J151 M280 M320 M415 M510 M520 M530 M541 M720 M800  
M904 M905 N131 N135 N161 N163 N200 N511 N512 N513  
Q233 R032

Specific Compounds  
20549K 20549P

## Chemical Indexing M3 \*02\*

## Fragmentation Code

G037 G038 G563 H4 H404 H464 H8 J0 J011 J1  
J151 M280 M320 M415 M510 M520 M530 M541 M720 M800  
M904 M905 N131 N135 N161 N163 N200 N511 N512 N513  
Q233 R032

Specific Compounds  
20549K 20549P

## Chemical Indexing M2 \*03\*

## Fragmentation Code

J0 J011 J1 J171 M210 M211 M262 M281 M320 M416  
M620 M720 M904 M905 M910 N131 N135 N161 N163 N200  
N511 N512 N513 Q233 R032

Specific Compounds  
00247K 00247P 07345K 07345P  
Registry Numbers  
0247P 0247U

## Chemical Indexing M3 \*03\*

## Fragmentation Code

J0 J011 J1 J171 M210 M211 M262 M281 M320 M416  
M620 M720 M904 M905 M910 N131 N135 N161 N163 N200  
N511 N512 N513 Q233 R032

Specific Compounds  
00247K 00247P 07345K 07345P  
Registry Numbers  
0247P 0247U

## Chemical Indexing M2 \*04\*

## Fragmentation Code

H4 H401 H481 H8 J0 J011 J1 J171 M280 M312  
M321 M331 M340 M342 M349 M381 M391 M416 M620 M781  
M904 M905 M910 N163 Q508

Specific Compounds  
00009K 00009R 06285K 06285R  
Registry Numbers  
0009U

## Chemical Indexing M3 \*04\*

## Fragmentation Code

H4 H401 H481 H8 J0 J011 J1 J171 M280 M312  
M321 M331 M340 M342 M349 M381 M391 M416 M620 M781  
M904 M905 M910 N163 Q508

Specific Compounds  
00009K 00009R 06285K 06285R  
Registry Numbers  
0009U

## Chemical Indexing M2 \*05\*

## Fragmentation Code

G037 G562 H4 H403 H463 H6 H601 H661 H8 J0  
J011 J1 J151 M280 M320 M415 M510 M520 M530 M541  
M781 M904 M905 N163 Q508

Specific Compounds  
AB6GYK AB6GYR

## Chemical Indexing M3 \*05\*

## Fragmentation Code

G037 G562 H4 H403 H463 H6 H601 H661 H8 J0  
J011 J1 J151 M280 M320 M415 M510 M520 M530 M541  
M781 M904 M905 N163 Q508

Specific Compounds  
AB6GYK AB6GYR

## Chemical Indexing M2 \*06\*

Fragmentation Code

J0 J011 J1 J171 M210 M212 M262 M281 M320 M416  
M620 M781 M904 M905 M910 N163 Q508

Specific Compounds

00445K 00445R 07398K 07398R

Registry Numbers

0445U

## Chemical Indexing M3 \*06\*

Fragmentation Code

J0 J011 J1 J171 M210 M212 M262 M281 M320 M416  
M620 M781 M904 M905 M910 N163 Q508

Specific Compounds

00445K 00445R 07398K 07398R

Registry Numbers

0445U

UNLINKED-DERWENT-REGISTRY-NUMBERS: 0009U; 0247P ; 0247U ; 0445U

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C2003-162414

**WEST****Freeform Search****Database:**

US Patents Full-Text Database  
US Pre-Grant Publication Full-Text Database  
JPO Abstracts Database  
EPO Abstracts Database  
Derwent World Patents Index  
IBM Technical Disclosure Bulletins

**Term:**

shikimic acid adj20 crystal\$ and (acetic acid or  
propionic acid or lactic acid)

**Display:**  **Documents in Display Format:**  **Starting with Number** **Generate:** ☐ Hit List ☒ Hit Count ☐ Side by Side ☐ Image

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**Search History**

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**DATE:** Monday, September 22, 2003   [Printable Copy](#)   [Create Case](#)

**Set Name Query**  
side by side

**Hit Count Set Name**  
result set

*DB=USPT,JPAB,EPAB,DWPI,TDBD; PLUR=YES; OP=ADJ*

<u>L11</u>	shikimic acid adj20 crystal\$ and (acetic acid or propionic acid or lactic acid)	5	<u>L11</u>
<u>L10</u>	shikimic acid (p) crystal\$ and (acetic acid or propionic acid or lactic acid)	0	<u>L10</u>
<u>L9</u>	shikimic acid (p) crystal\$ (p) (acetic acid or propionic acid or lactic acid)	0	<u>L9</u>
<u>L8</u>	shikimic acid same crystal\$ same(acetic acid or propionic acid or lactic acid)	0	<u>L8</u>
<u>L7</u>	shikimic acid near20 crystal\$ near25 (acetic acid or propionic acid or lactic acid)	0	<u>L7</u>
<u>L6</u>	L3 and (acetic acid or propionic acid or lactic acid)	120	<u>L6</u>
<u>L5</u>	L3 and (acetic or propionic or lactic)	123	<u>L5</u>
<u>L4</u>	L3 and (acetic or lactic or propionic) (w)acid	0	<u>L4</u>
<u>L3</u>	L2 and crystal\$	143	<u>L3</u>
<u>L2</u>	shikimic acid	355	<u>L2</u>
<u>L1</u>	3546072	2	<u>L1</u>

END OF SEARCH HISTORY